

Unrealistic Assumptions



Philosophy of Economics

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Contents

1. **Musgrave on Unrealistic Assumptions**
2. Assumptions in Hotelling's Model
3. The Vector Model

What does Friedman mean by “unrealistic”?

- **Negligibility (Marginality) Assumptions.** Some causal factor is negligible—we can ignore its effects
 - This claim can be empirically tested
 - It's no objection against a theory that it is 'unrealistic' in this sense
- But: you do not have to be an instrumentalist to rely on negligibility assumptions. Negligibility assumptions can be interpreted in a realist way!

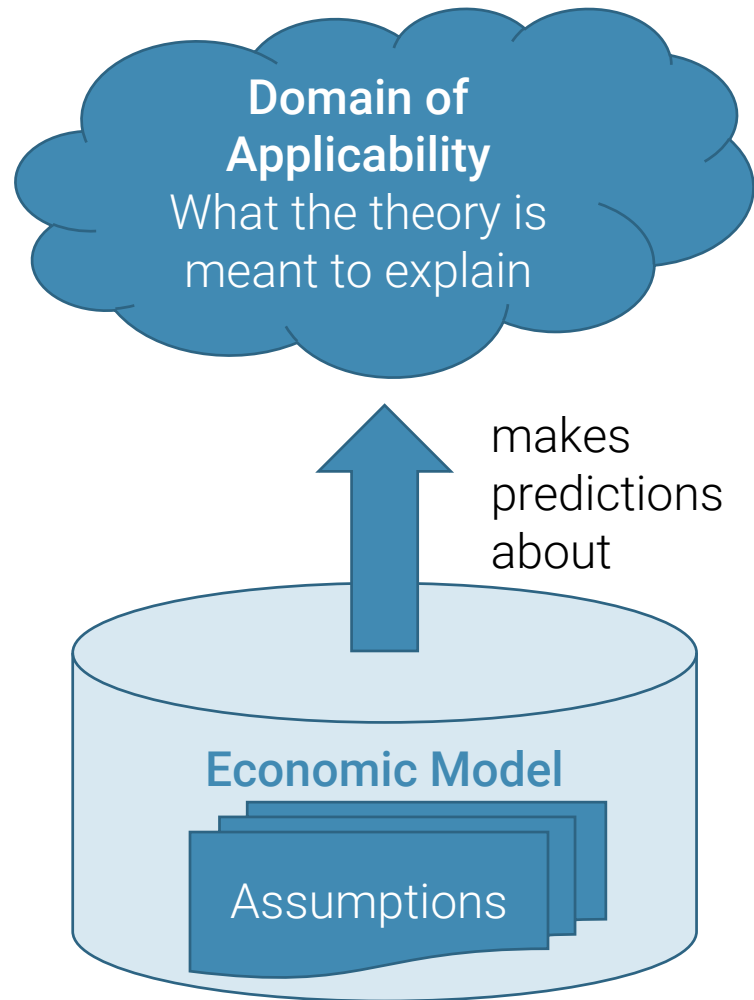
What does Friedman mean by “unrealistic”?

- **Domain Assumptions.** The theory only applies in the absence of some causal factor. Our theory is unrealistic because it does not cover all cases.
 - ❑ Not to be confused with marginality assumptions
 - ❑ The more domain assumptions we make, the less applicable our theory becomes

What does Friedman mean by “unrealistic”?

- **Heuristic Assumptions.** To be able to develop a full theory, we (initially) ignore a factor **we know** to have a causal influence
 - if we tried to include all factors in our theory at once, it would be hopelessly complicated
 - we use such assumptions in the “**method of successive approximation**”

A Simplified Account



- **Negligibility Assumption:** claim that some causal factor *within the target domain* is irrelevant
- **Domain Assumption:** claim that theory *only applies to a certain target domain*
- **Heuristic Assumption:** *used in developing a theory*, makes claims about neither real causal factors or domain of applicability

Friedman's Two Claims

- **Instrumentalist Thesis (IT)**

the relevant question to ask about the “assumptions” of a theory is not whether they are descriptively “realistic” [...] but whether they are sufficiently good approximations for the purpose in hand. And this question can be answered only by seeing whether the theory works, which means whether it yields sufficiently accurate predictions [...]. (p. 153)

- **Strong Instrumentalist Thesis (SIT)**

Truly important and significant hypotheses will be found to have ‘assumptions’ that are wildly inaccurate descriptive representations of reality, and, in general, **the more significant the theory, the more unrealistic the assumptions** [...]. (p. 153)

Can IT/SIT be defended on Musgrave’s different interpretations of “unrealistic”?

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Assumptions in Hotelling's Model

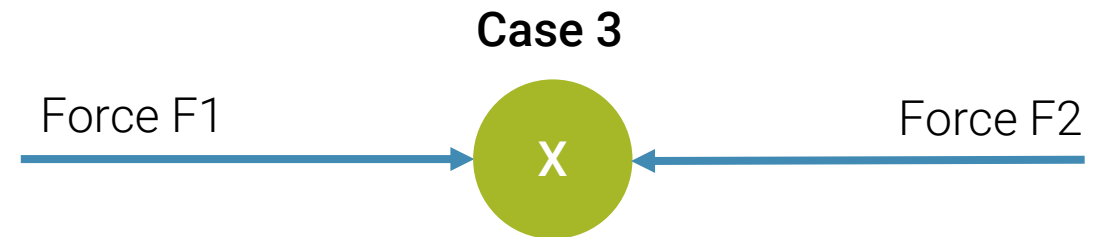
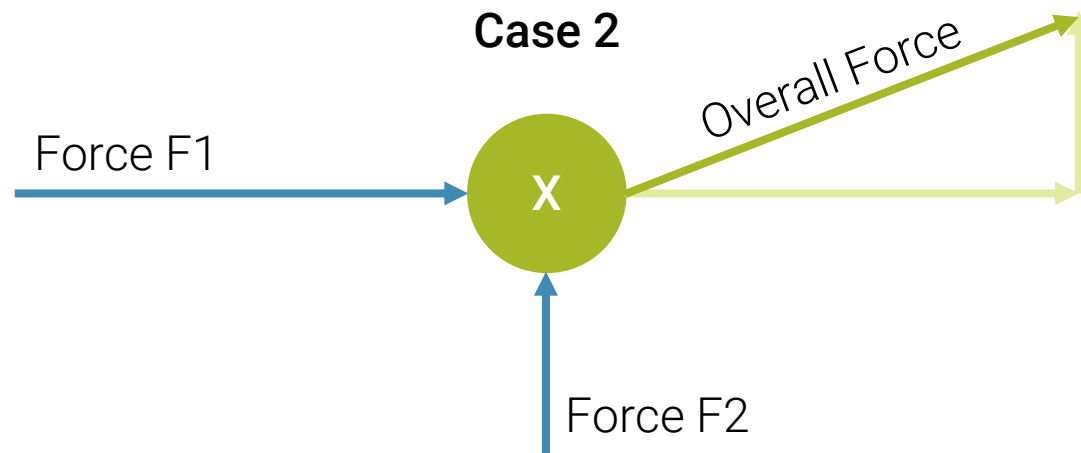
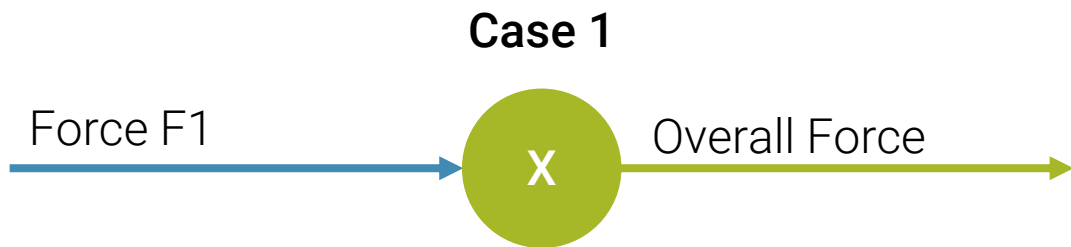
- (1) The market is a finite (one-dimensional) line (p. 45)
 - (2) The "line" represents geographical distance (implicit in sec. I)
 - (3) There are two producers on the market (p. 45)
 - (4) There is only one, identical commodity sold on the market (p. 45)
 - (5) Consumers are uniformly distributed along the market (p. 45)
 - (6) Consumers buy the same amount of commodity, whatever the price (p. 45)
 - (7) Consumers only choose on the basis of price (p. 45)
 - (8) There are transportation costs, linear to distance (p. 45)
 - (9) Producers can adjust their prices freely (p. 45)
 - (10) Producers adjust prices so that they maximise profit (p. 46)
 - (11) The position of producers on the market is fixed (implicit throughout)
 - (12) There are no production costs (p. 45)
 - (13) All consumers and producers possess full information about prices, products, the distribution of consumers, and so on. (implicit throughout)
- (...There are likely more implicit and explicit assumptions ...)

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The Vector Case

Claim: "F1 pushes X towards the east (right)"



Interactions

In the Vector Case,

1. each causal factor is **independent**. F1 has the same effect on X no matter what and how many other forces are at work
2. each causal factor is **homogenous**. F1 and F2 can be understood in the same way—differences are merely quantitative
3. each causal factor is **causally effective**. Each force is exerting energy on X. This is true even in case 3, where F2 cancels out F1
4. there are **known laws of composition/interaction**. We know how other factors change the overall effect on X. This also means we can work our way back to identify disturbing forces.

Questions

1. Assume that F_2 in case 3 is stronger than F_1 (so that X is pushed to the west). Is it still true that F_1 pushes X to the east?
2. What makes the Vector Model appealing?
3. How can we use the Vector Model to explain unrealistic assumptions in scientific models?
4. Do assumptions in economics largely follow the Vector Model?

Mäki/Cartwright: Models as Isolation

- One interpretation of the Vector Case: we identify a true causal mechanism (a “tendency”, a “capacity”)
- “In an isolation, something [...] is ‘sealed off’ from the involvement or influence of everything else, a set Y of entities [...]” (Mäki)
- We achieve isolation by idealisation
 - ❑ Thought experiments isolate one causal mechanism
 - ❑ Experiments also tend to isolate one causal mechanism, but isolating certain mechanisms in practice is hard or impossible (especially in economics)

Thank you!

